

REMARKS

Applicants have received and reviewed the Office Action dated April 27, 2010. By way of response, Applicants present the remarks below. After the recent Examiner's Amendment, claims 1-3, 5-11 and 17-23 are pending. Applicants submit that the pending claims are supported by the specification as filed.

For the reasons presented below, Applicants respectfully submit that the pending claims are in condition for allowance, and notification to that effect is earnestly solicited.

Rejection of Claims Under 35 U.S.C. §§ 102(b) and 103(a)

The Examiner rejected claims 1-3, 5-11 and 17-23 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Lorigan et al., EP 0365289. Applicants respectfully traverse these rejections.

The present claims recite a pipe made of a crosslinkable polyethylene composition including < 40 wt% (e.g., 20-30 wt%) high density polyethylene, an ethylene silane copolymer having silane content of about 0.1 to 10 wt% and a density of >925 (e.g., >928) kg/m³, and a silanol condensation catalyst. The claimed polymer is not a grafted polymer (present application at p.4/l. 4-7).

In contrast, the Lorigan et al. reference discloses a polymer composition comprising a silane copolymer, a second polymer (p. 4/l. 34-40), a filler, and a silanol condensation catalyst (p. 3/l. 43-58). This polymer composition is used according to the Lorigan et al. reference for wire and cable applications (introduction and p. 6/l. 29-31). Therefore, filler dispersibility (p. 3/l. 21-25; p. 5/l. 50-54) and electrical conductivity (p. 3/l. 45-46) are important properties. This is further shown in the working examples wherein large amounts of carbon black are used as filler. The Lorigan et al. reference only mentions the possible use of polymers in "useful articles such as pipe" in the introduction (p. 2/l. 5) without discussing specific polymers, let alone ethylene silane copolymers. Thus, the Lorigan et al. reference neither teaches nor suggests the presently claimed pipes.

Further, the Lorigan et al. reference mentions a variety of objects and effects at page 3, lines 43-46, but these do not at all relate to pipe applications and particularly not to pressure

resistance, tensile and impact properties of pipes as addressed in the present invention. Lorigan et al mentions electrical conductivity, insulation properties and flame retardancy which are typical properties in cable applications but not in pipe applications.

It is common knowledge that pipes can be made of a large variety of plastic materials. The material is then chosen depending on the purpose of the pipe. Thus, parenthetical mention of pipe as a possible application in the Lorigan et al. reference does not add anything to the disclosure of this document since this reference is – as already stated above – totally silent about properties and applications of pipe. Therefore, the Lorigan et al. reference cannot be regarded by the person skilled in the art as relating to pipe.

A person skilled in the art would not refer to the Lorigan et al. reference when searching for materials which are capable of improving the mechanical properties of pipe. Even if the skilled person does so, the Lorigan et al. reference is not of any use because the Lorigan et al. reference does not discuss any characteristics which are capable of improving the mechanical properties of pipe.

For example, at page 6, lines 17-21, the Lorigan et al. reference asserts that it discloses “a method for producing an article comprising a crosslinked silane copolymer composition” including thermoforming and crosslinking the composition. However, this reference is silent regarding the conditions or densities required for making a pipe that can, for example, withstand high pressures, from a polymer composition. When this reference employs a copolymer of a suitable density (Example 1, page 7, line 47), it combines it with a linear low density polyethylene. In contrast, the presently claimed pipe includes high density polyethylene. Here, the Lorigan et al. reference teaches away from the presently claimed invention.

Further, the present application describes polymers that are produced in a tubular reactor at particular pressures and temperatures (see the section “Examples” on pages 6-8 of the present PCT publication). Furthermore, the present polymers have been characterized insofar as they had to pass the quality control point at 95°C and at a circumferential stress in the pipe wall of 2.8 MPa according to DIN 16874 (Table 1) or, in a specifically harsh testing procedure, at 95°C and at a circumferential stress in the pipe wall of 4.4 MPa according to DIN 16892 (Table 3). Please note that the conditions of Table 3 are so excessive that even improved polymer A showed a

failure time of only 0.1 h. However, this does not allow the conclusion that polymer A cannot solve the problem of pressure resistance which is solved by the standard conditions given in Table 1.

However, even for the extremely high standard of DIN 16892 given in Table 3, the patent provides a solution according to an embodiment, which is the three component composite according to the last entry of Table 3, i.e. the ethylene silane copolymer resin, polymer A blended with a grafted silane cross-linked PEX high density ethylene (M-2) and a high density polyethylene (M-1) having a density of 954 kg/m^3 . However, please note that this is a specific embodiment of the present invention and not the general teaching which is embodied by the subject matter of claim 1.

The Lorigan et al. reference does not disclose any such conditions and there is also no hint towards testing as described in the present application. Thus, this reference fails to teach or suggest the presently claimed pipe.

Even if the skilled person envisaged starting from Lorigan et al, he would not know what compositions to test, so it would constitute an undue burden to the skilled person to check any possible combination of process conditions which could theoretically lead to a useful resin for a pressure pipe, and even then not knowing which results to achieve. Thus, the rejection is based on hindsight. The Lorigan et al. reference does not at all serve as a promising starting point and does not give any suggestion to arrive at the present invention.

Accordingly, based on the foregoing differences, Applicants submit that the cited reference neither teaches nor suggests the presently claimed pipes, and withdrawal of this rejection is earnestly solicited.

Summary

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Reply to Office Action of 04/27/2010

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate.


Please charge any additional fees or credit any overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

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